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PART V

CONSUMER PRODUCT SAFETY COMMISSION

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CELLULOSE INSULATION

Proposed Amendment to Interim Standard and Certification Rule

CONSUMER PRODUCT SAFETY COMMISSION

[16 CFR Part 1209]

INTERIM STANDARD FOR CELLULOSE INSULATION

Proposed Amendment and Certification Rule

AGENCY: Consumer Product Safety Commission.

ACTION: Notice of intent to propose an amendment to interim standard and a certification rule; solicitation of comments.

SUMMARY: In this document the Commission announces that it intends to propose an amendment to its interim safety standard for cellulose insulation and to propose a rule that specifies how manufacturers would certify that cellulose insulation meets the amended standard. In recently enacted legislation, Congress directed the Commission to issue the interim standard, based on General Services Administration specification HH-I-515C, to eliminate or reduce unreasonable risks of injury from flammable and corrosive cellulose insulation. The legislation also requires the Commission to propose, as an amendment to the interim standard, any revisions to the GSA specification that supersede the requirements for flame resistance and corrosiveness. GSA recently revised its specification. The Commission must propose an amendment to its interim standard by January 22, 1979. Because the statute provides a short time for considering comments and deciding whether to issue the proposed amendment in final form, the Commission is now requesting comments in advance on the provisions of HH-I-515D and related issues. The Commission is also requesting comments on the proposed certification rule now since the Commission intends to publish the proposed certification rule at the same time the proposed amendment is published. The Commission will consider these comments in preparing the proposed amendment to the interim standard and the proposed certification rule.

DATE: Comments must be submitted by October 6, 1978.

ADDRESS: Comments should be submitted to the Office of the Secretary, CPSC, Washington, D.C. 20207. Received comments and other information on this proceeding may be viewed in the Office of the Secretary, CPSC, 1111 18th Street NW., Third Floor, Washington, D.C.

FOR FURTHER INFORMATION CONTACT:

Harry I. Cohen, Program Manager, Office of Program Management, Consumer Product Safety Commission, Washington, D.C. 20207, 301-492-6453.

SUPPLEMENTARY INFORMATION: On July 11, 1978, the "Emergency Interim Consumer Product Safety Standard Act of 1978," Pub. L. 95-319, became law. This legislation amended the Consumer Product Safety Act (CPSA) (15 U.S.C. 2051 et seq.) by adding a new section, section 35, that requires the Commission to issue an interim consumer product safety standard for cellulose insulation, based on the requirments for flame resistance and corrosiveness in the General Services Administration specification HH-I-515C, as effective February 1, 1978.

Pursuant to the statute, the Commission, on August 8, 1978, published the interim consumer product safety standard addressing the flammability and corrosiveness of cellulose insulation (43 FR 35240). All cellulose insulation manufactured after September 7, 1978, must comply with the standard.

The "Emergency Interim Consumer Product Safety Standard Act of 1978" also provides that until a final consumer product safety standard is in effect, the Commission must publish for public comment amendments to the interim standard to incorporate each revision GSA issues that supersedes the requirements for flame resistance and corrosiveness in GSA specification HH-I-515C. The Commission may make appropriate changes in the GSA revisions before proposing the amendment for public comment. The Commission must issue the amendment unless the Commission determines, after consulting with the Secretary of Energy, that the amendment is not necessary to protect consumers from the unreasonable risk of injury associated with flammable or corrosive cellulose insulation or that implementation of the amendment will create an undue burden on persons who are subject to the interim consumer product safety standard.

Revision of GSA Specification

The General Services Administration has informed the Commission that, effective June 15, 1978, it has issued GSA specification HH-I-515D. Since this specification contains requirements for flame resistance and corrosiveness for cellulose insulation that supersede the requirements of GSA specification HH-I-515C, the Commission is required by Pub. L. 95-319 to publish the flame resistance and corrosiveness provisions of HH-I-515D as a proposed amendment to the interim standard.

Pub. L. 95-319 requires that within 45 days after the effective date of the act (July 11, 1978), the Commission must publish the flame resistance and corrosiveness provisions of HH-I-515D as a proposed amendment to the interim standard. The Commission may extend this time period for an additional 150 days if the Commission determines that more time is necessary to study the technical and scientific basis or the safety and economic consequences of the GSA revision. An additional 45-day extension may be made for the same purpose if the Commission provides Congress with a notice of the extension, along with a statement of the reasons for the extension and an estimate of the length of time required for the Commission to complete its action on the revision. Additional 45-day extensions beyond the first 45-day extension discussed above may be made if the Commission follows the same procedure and if Congress has not disapproved further extensions within 15 days after having received notice of the first additional 45-day extension. After the proposed amendment has been published, the act provides 30 days for interested persons to submit comments. Within 90 days after the end of the 30-day public comment period, the Commission must publish the amendment as a final amendment.

The Commission has extended, for 150 days, from August 24, 1978, until January 22, 1979, the time in which it must publish the proposed amendment to the interim standard (43 FR 35238, August 8, 1978). The purpose of this extension is to provide the Commission with additional time to study the technical and scientific basis and the safety and economic consequences of the requirements of HH-I-515D. In addition to publishing the proposed amendment by January 22, 1979, the Commission plans to publish on the same day a proposed certification rule under section 14 of the CPSA (15 U.S.C. 2063). That rule would prescribe requirements manufacturers would have to follow to certify that their cellulose insulation complies with the requirements of the amended standard. Certification of compliance is required by section 14 (these provisions are further explained in the section of this notice titled, "Request for Comments on Possible Content of the Proposed Certification Rule"). Within the next 2 months, the Commission also plans to publish a proposed rule under section 27(e) of the CPSA (15 U.S.C. 2076(e)) that would require manufacturers of cellulose insulation to provide purchasers with performance and technical data relating to the proper installation of cellulose insulation.

Reason for Publishing Notice of Intent

In this notice of intent the Commission is seeking public comments on all

aspects of the proposed amendment and proposed certification rule in order to assist the Commission in preparing these documents. The Commission will consider all timely received comments. When published in the FEDERAL REGISTER the proposed amendment and proposed certification rule will give interested persons another opportunity to submit written comments on these proposals.

The legislative history of Pub. L. 95-319 emphasizes that the Commission must adopt the flame resistance and corrosiveness provisions of HH-I-515D as an amendment to the interim standard unless the Commission finds either (1) that the amendment is not necessary to protect consumers from the unreasonable risk of injury associated with flammable or corrosive cellulose insulation, or (2) that implementation of the amendment will create an undue burden on persons subject to the interim standard. In the conference report, the conferees stated their expectation that any member of the public who objects to the amendment will make available to the Commission whatever informaton is necessary in order for the Commission to fully analyze the impact of the amendment (H.R. Rept. 95-1322, 95th Cong., 2d sess. 8 (1978)).

The Commission strongly encourages interested persons to submit comments on the issues raised in this notice of intent. In order to be most helpful to the Commission, comments should discuss specific issues raised in this notice as well as any other issues the commenters believe are important. Wherever possible comments should include all of the information and data forming the basis of any conclusions or opinions stated in the comment. The specific issues on which the Commission seeks comment are listed below in the section entitled Request for Comments.

GENERAL DESCRIPTION OF HH-I-515D

The revised GSA specification HH-I-515D supersedes the flame resistance provisions of GSA specification HH-I-515C by replacing the flame resistance test methods of HH-I-515C with two new tests for determining flame resistance, the attic floor radiant panel test (see paragraph 4.8.7 of the GSA specification) and the smoldering combusion test (see paragraph 4.8.8 of the GSA specification). (The full text of the flame resistance and corrosiveness provisions of HH-I-515D is reprinted at the end of this notice.) The present interim standard based on HH-I-515C requires cellulose insulation to have a flame spread rating not greater than 25 when tested in a Steiner tunnel. Insulation must also pass a flame resistance permanency test that uses the Steiner tunnel and a 2-foot version of the tunnel. Unlike the tunnel test methods of HH-I-515C, which measure how quickly a given material burns, the radiant panel test and the smoldering combustion test evaluate the fire performance of cellulose insulation by specifying both open flame and smoldering ignition sources in an attempt to simulate real-life conditions. The radiant panel test is designed to measure the potential of a material to propagate open flames across its surface. To accomplish this the test uses a panel to generate heat which is reflected on the surface of the test specimen. The amount of heat received by the specimen decreases as the distance from the heat source increases. The length of char present on the exposed specimen is measured and reported as "critical radiant flux." At paragraph 3.1.9, HH-I-515D requires test specimens to have a critical radiant flux equal to or greater than 0.12 watts/cm^2 in order to pass the test.

The smoldering combustion test is designed to determine the potential of a material to undergo sustained combustion when exposed to a moderate heat source. A lit cigarette (lit end up) is placed in a small sample of conditioned insulation in a stainless steel box. The cigarette and specimen are allowed to burn for at least 2 hours or until the smoldering has ended. After the burning has ended, the specimen holder with its material are weighed, and the percent weight loss of the original specimen is calculated. In order to pass the requirements of HH-I-515D for smoldering combustion, the insulation must have no evidence of flaming combustion and a weight loss of less than or equal to 15 percent of the initial weight of each of the specimens tested.

At paragraphs 3.1.7 and 4.8.5, HH-I-515D includes requirements for the corrosiveness of insulation that supersede the requirements of HH-I-515C. The test method of HH-I-515D provides that insulation samples are saturated with distilled water and placed in contact with a thin metal coupon. Aluminum, copper, and steel coupons are used. The saturated insulation and metal coupon assembly is placed in a humidity chamber at high temperature and high relative humidity for 14 days. After the test the corrosion products are removed from the test specimens, which are then examined over a light bulb for perforations. If the metal coupon is observed to have any perforation, the insulation has failed the corrosiveness requirement. (The corrosiveness requirements of the present interim standard, at §§ 1209.3(c) and 1209.6 differ from those of HH-I-515D in the procedure for preparing the metal coupons and insulation samples, the type of coupons used in the test, and the amount of time the specimens are left in the humidity chamber.)

COMMISSION STAFF SUGGESTED CHANGES IN THE PROVISIONS OF HH-I-515D

Section 35(c)(2)(C) of Pub. L. 95.319 authorizes the Commission to make changes in the flame resistance and corrosiveness provisions of HH-I-515D in order to make these provisions suitable for issuance as an amendment to the interim standard. The legislative history of the act indicates that the Commission could modify the existing test methods in HH-I-515D or develop a new test method for flame resistance or corrosiveness in order to insure reproducible results, adequately simulate a home situation, or deal with a problem that is not adequately addressed by the GSA revision. The Commission may also make technical nonsubstantive changes, such as numbering changes, correction of typographical errors, and the addition of tolerances, to insure that the revision is suitable for issuance as a mandatory product safety rule (H.R. Rept. 95-1322; 95th Cong., 2d sess. 13 (1978); and H.R. Rept. 95-1116; 95th Cong., 2d sess. 7-8 (1978)).

The full text of the flame resistance and corrosiveness provisions of HH-I-515D are published at the end of this notice. Listed in this section are the changes in HH-I-515D that the Commission staff is considering at the present time. Although these suggested changes have not been approved by the Commission, and although it is possible that additional changes will be included in the proposed amendment, the Commission encourages persons to comment on these suggested changes to assist the Commission in developing the proposed amendment. The paragraph references are to the sections of HH-I-515D that have been reprinted below.

(1) At paragraph 4.8.1 Settled density, which prescribes the procedures for determining settled density of loose fill insulation, the staff recommends that the phrase "and the density thus determined shall be the density on which the coverage chart is determined" be deleted. This phrase is not part of the flame resistance or corrosiveness provisions of HH-I-515D. The coverage chart referred to is used for labeling on the bag to indicate the number of pounds of insulation to install per cubic foot of floor space to obtain a given R value.

(2) In the description of the apparatus for determining settled density in paragraph 4.8.1, the staff recommends that the description of the humidity chamber be changed from one capable of maintaining 97 percent ±3 percent relative humidity to one capable of maintaining 90 percent ±3 percent rel-

ative humidity. This change is also recommended in the procedure section of this same paragraph. The reason for the suggested change is that in using presently available equipent it is extremely difficult to obtain this humidity at this temperature. Equipment manufacturers have indicated to the Commission staff that they do not believe their equipment can duplicate these environmental conditions.

(3) In paragraph 4.8.1, the Commission staff also recommends that the description of the sample preparation for pneumatic applications be changed to allow the blowing hose to be pointed "approximately" 10° upwards. The reason for this change is that it is extremely difficult to maintain an exact 10° angle of the blowing hose when preparing a sample in this manner.

(4) The staff recommends that the word "fluff" be deleted from the last sentence of the description of the sample preparation for pneumatic applications in paragraph 4.8.1. The staff has been informed that this word was mistakenly included in the final specification issued by GSA.

(5) At paragraph 4.8.5, which describes the procedures for corrosiveness testing the staff recommends that the word "steel" be deleted and replaced with the word "test" in the description of the procedure for degreasing coupons in the corrosiveness test. This change has been made since the test procedure involves the use of aluminum and copper coupons in addition to steel coupons. The staff is considering various additional degreasing procedures to effectively clean the test coupons. In this paragraph the staff also recommends that the words "for each coupon" be added to the sentence: "Presaturate the insulation samples by mixing 20 grams (gms) of insulation with distilled water." This change is needed since the present wording does not clearly state that 20 gms of insulation should be added per coupon. In the formula for determining the quantity of distilled water to be used for each 20-gm sample, the staff recommends that the abbreviation "pcf" be replaced by the phrase "pounds per cubic foot."

The staff also recommends that the description of the concentration of nitric acid be changed from "15.9 N" to "15.9 Normal" for clarification.

(6) Paragraph 4.8.7, which prescribes for radiant panel testing, describes the radiant panel as being located in a draft-protected laboratory. The staff believes that the word "laboratory" should be replaced by the word "area," since only the area in which the specimen is tested, rather than the entire laboratory, needs to be draft protected.

In this same paragraph, the staff suggests that the requirement that the radiant panel heat chamber be capable of operating at temperatures up to 816° C be changed to 750° C. The staff does not believe that the 816° temperature is needed for the testing of cellulose insulation.

In this same paragraph, the staff recommends that the description of the range of the total heat flux transducer used in the test chamber be changed from "0-1/5" to "0-1.5" watts/cm² and from "0-1/32" to "0-1.32" Btu/ft² in order to correct a typographical error in the GSA specification.

The Conditioning section of paragraph 4.8.7 requires the test specimens to be conditioned to equilibrium or a minimum of 48 hours, whichever is greater. The staff recommends that the requirement that test specimens be conditioned a minimum of 48 hours be deleted. The staff believes that 48 hours is not always needed for equilibrium to be reached. By eliminating the minimum 48 hour requirement, testing can be conducted more rapidly in some instances.

In the Test Procedure section of paragraph 4.8.7, the Commission staff recommends that the amount of time for leaving the pilot burner flame in contact with the test specimen be changed from 5 minutes to 2 minutes. Tests conducted in the CPSC lab indicate that if a specimen is going to ignite, it will ignite within the first 2 minutes.

(7) In the description of the smoldering combustion apparatus at paragraph 4.8.8 the Commission staff recommends that the words "or equivalent" be added to the description of the glass fiberboard. In discussions with laboratory personnel the staff has learned that glass fiberboard is difficult to work with when conducting tests.

In the description of the balance used in the smoldering combustion test, the staff recommends that the phrase "and provided with a suitable scale plan" be deleted. This change will allow different types of equipment to be used that may be more accurate than the weighing device specified in this paragraph.

In the description of the test procedure for the smoldering combustion test, the conditioning requirements for test specimens are 69° F and 50 percent relative humidity. The Commission staff is examining these requirements to determine if they are necessary.

(8) The Commission is considering including a labeling requirement in the proposed amendment that would enable consumers to distinguish insulation that meets the requirements of the interim standard based on HH-I-515D from insulation that has been manufactured before September 8, 1978, the effective date of the present interim standard based on HH-I-515C. As required by Pub. L. 95-319, the present interim standard, at § 1209.9, requires containers of cellulose insulation to bear the following statement: "Attention: This material meets the applicable minimum Federal flammability standard. This standard is based upon laboratory tests only, which do not represent actual conditions which may occur in the home." Insulation manufactured before September 8, 1978 is not required to bear this label statement, and may be legally sold without such labeling after the present interim standard becomes effective on September 8, 1978. The proposed amendment will not contain the labeling requirement of § 1209.9 of the present interim standard, since Pub. L. 95-319 provides that this labeling requirement remains in effect only during the time in which the present interim standard based on HH-I-515C is in effect. As a result, unless the Commission includes a labeling provision in the amended interim standard, consumers would not be able to distinguish cellulose insulation that meets the requirements of the proposed amendment from insulation that has been manufactured before the effective date of the present interim standard.

The labeling provision in the amended interim standard would require containers of cellulose insulation to bear a statement indicating that the insulation meets the HH-I-515D interim standard. The proposed text of the labeling provision will appear in the FEDERAL REGISTER notice proposing the amendment to the interim standard. It is anticipated that the provisions of 1209.9(b) governing the prominence and conspicuousness of the labeling statement for the present interim standard will be the same in the proposed amendment. The Commission encourages interested persons to submit comments on the possible labeling to be included in the proposed amendment.

REQUEST FOR COMMENTS ON PROVISIONS OF HH-I-515D

In addition to technical information, the Commmission is seeking information to help it determine whether the provisions of HH-I-515D are unnecessary to protect consumers from the unreasonable risk of injury associated with flammable or corrosive cellulose insulation and whether implementation of the amendment will create an undue burden on persons who are subject to the interim consumer product safety standard. In order to assist the Commission in studying the technical and scientific basis for the proposed amendment, as well as the safety and economic consequences of the pro-

posed amendment, the Commission is especially interested in receiving information and data concerning the following issues:

1. Whether the provisions of HH-I-515D published in this notice are the provisions of that specification that supersede the requirements for flame resistance and corrosiveness of HH-I-515C and an explanation of the reasons for the views that these provisions are not the appropriate provisions, or that additional provisions should be included.

2. Whether the changes suggested by the Commission staff should be made and an explanation of why these changes should or should not be made.

3. The reproducibility and repeatability of the test methods in HH-I-515D.

4. The degree to which the criteria in HH-I-515D addresses an unreasonable risk of injury associated with flammable and corrosive cellulose insulation.

5. Suggested improvements in the test methods and criteria in HH-I-515D which will make the test more convenient, more reproducible, or more closely related to the unreasonable risk of injury.

6. Any alternative test methods which might replace or be added to the test methods in HH-I-515D in order to make the standard more directly related to the risk of injury. (The Commission specifically requests comments and data concerning test methods which simulate the risk of ignition or smoldering of cellulose insulation when installed over a recessed electric light fixture.)

Request for Comments on Economic Considerations

The Commission is especially interested in receiving comments on the economic burden of a proposed amendment based on HH-I-515D. Specifically, the Commission is interested in receiving information concerning changes in manufacturing costs, selling prices, performance of the product, sales volume, and employment which are expected to result from compliance with an amendment based on HH-I-515D when compared with the present interim standard based on HH-I-515C. The Commission is particularly interested in receiving information concerning the impacts on small businesses, and information concerning the availability of component materials, such as paper and boric acid (and substitutes).

Information available to the Commission indicates the demand for cellulose insulation appears to have declined significantly in recent months. Although the reasons for this decline have not been clearly identified, it is possible that the cellulose insulation industry is already involved in a long term downward trend in sales volumes, employment, and number of firms. The Commission encourages commentors to furnish information on this topic as well as information on industry structure in general.

Request for Comments on Effective Date

At the present time the Commission is considering publishing the proposed amendment to the interim standard on or before January 22, 1979. A final amendment would be published on or before May 20, 1979, with an effective date 60 days after publication. All cellulose insulation covered by the interim standard manufactured after the effective date would be required to comply with the amended standard. The Commission encourages interested persons to submit data and arguments concerning the most appropriate effective date of a final amendment to the interim standard.

Requests for Comments on Environmental Considerations

At the present time the Commission is preparing an environmental assessment of the regulatory alternatives concerning an amendment to the interim standard for cellulose insulation. The assessment will address the potential effects of Commission action on the production, distribution, consumption, and disposal of products subject to the standard to determine whether the effects of the regulatory alternatives will lead to any significant impact on air and water quality, solid waste disposal, land use, energy use, or any other aspects of the physical environment. The Commission encourages interested persons to submit comments on the environmental considerations of the proposed amendment. In preparing the environmental assessment the Commission will consider any such comments received.

Request for Comments on Possible Content of the Proposed Certification Rule

If the Commission issues a final amendment to the interim standard, manufacturers of cellulose insulation will be required to comply with the certification provisions of section 14(a)(1) of the act (15 U.S.C. 2063(a)(1)) after the effective date of the amended standard. (The certification provisions based on HH-I-515C is in effect.) Section 14(a)(1) requires manufacturers (and private labelers, if the product bears a private label) to issue a certificate which states that the product conforms to the insulation standard. The certificate must be based on a test of each product or on a reasonable testing program and must state the name of the manufacturer or private labeler issuing the certificate and include the date and place of manufacture. Section 14(b) provides that, at the option of the person required to certify the product, testing may be conducted by an independent third party qualified to perform such tests or testing programs. Section 35(f)(1) of the act authorizes the Commission to require that any person required to comply with the certification requirements of section 14 for cellulose insulation must provide for the performance of any test or testing program through the use of an independent third party qualified to perform such test or testing program.

In addition, section 14 of the act allows, but does not require, the Commission to issue regulations which would (1) prescribe a reasonable testing program, (2) specify which manufacturer shall issue the certificate when a product has more than one "manufacturer," and (3) require labeling of products subject to the safety standard. Manufacturers of products subject to a consumer product safety standard are required to issue a certificate under section 14(a)(1) based on a test of each product or on a reasonable testing program even if the Commission has not issued a regulation under section 14(b). At this time, the Commission plans to propose for public comment a certification rule under section 14(b) at the same time it proposes the HH-I-515D amendment to the interim standard. Listed below are various alternatives the staff is presently considering for the content of the certification rule. It is possible that the staff will develop additional alternatives after the notice of intent has been published. In addition, the Commission may decide not to issue a certification rule, and thus manufacturers would be required to issue a certificate based on a test of each product or on a reasonable testing program the manufacturers develop themselves.

The Commission seeks comment on the following alternatives the staff is now considering to form the substance of a proposed certification rule. The Commission will review any timely comments before deciding whether to propose a rule and what form the proposal should take.

(1) One alternative is to develop a proposed certification rule based on the quality assurance provisions in paragraph 4 of HH-I-515D. These provisions, as specified in Military Standard 105 (MIL-STD-105) "Sampling Procedures and Tables for Inspection by Attributes," define sample inspection requirements based on the quantity of the manufactured product to be certified. The sample of product selected would be subject to the full compliance tests set out in the standard using the flooring radiant panel,

the smoldering combustion test, and the corrosiveness test procedures.

For a manufacturing facility in continuous production, this procedure would require holding lots until the results of testing were available. (This alternative may require the manufacturer to hold lots for as long as 14 days, while awaiting corrosiveness test results.)

This procedure would also require quick access to a radiant panel tester to obtain test results on a regular basis.

2. A second alternative would prescribe testing when the insulation produced undergoes changes after initial testing or certification. Under this alternative the product would be tested at least daily for smoldering combustion, pH, the grain size of the chemicals used to treat the cellulosic fibers, and for the percent of chemicals added by weight. If any of these changed significantly, or if the type of chemicals or the cellulosic materials are changed, the product would have to be recertified by retest using radiant panel and corrosiveness tests.

3. A third alternative would prescribe the daily use of simplified, screening tests which could predict results which would be obtained by testing products with the radiant panel and corrosiveness tests. Since the smoldering combustion test can be performed quickly and inexpensively on a daily basis, a substitute screening test for smoldering combustion is not needed. The Commission has not yet identified adequate screening tests for either the radiant panel or corrosiveness tests, but among those tests under consideration are:

RADIANT PANEL

Oxygen index test.
Factory mutual inclined channel test.
The applied research methanamine pill test.
The terralab radiant panel.
The 2-foot tunnel test.

CORROSIVENESS

Chemical analysis for aluminum.
Chemical analysis for ammonium.
Chemical analysis for sulfates.
Portable corrosometer or potentiostat.

Copies of these tests will be available in the Commission's Office of the Secretary, Third Floor, 1111 18th Street NW., Washington, D.C. 20207.

Interested persons are invited to submit comments on the three alternatives discussed above, as well as on any other alternatives. The Commission is especially interested in receiving comments on the relative economic burden on persons subject to the certification alternatives discussed above. The Commission is also interested in receiving data which would indicate the extent to which any screening test predicts test results from the radiant panel and corrosiveness test as specified in HH-I-515D.

TEXT OF HH-I-515D

In order to assist interested persons in commenting, the Commission is reprinting below the flame resistance and corrosiveness provisions of HH-I-515D. The text and numbering of these paragraphs are the same as those used in HH-I-515D, as it became effective on June 15, 1978. When the Commission issues its proposed amendment these provisions, with any changes the Commission decides to incorporate, will be in a form suitable for publication as a mandatory standard and will bear numbering assigned by the Commission for purposes of codification. The proposed amendment will also include a scope and application section, and a definitions section, similar to those sections in the present interim standard. The proposed amendment will not contain the labeling requirements of § 1209.9 of the interim standard, since Public Law 95-319 provides that this labeling requirement remains in effect only during the time in which the interim standard based on HH-I-515C remains in effect. The proposed amendment will also not include the flame resistance permanency requirement of § 1209.3(b) of the interim standard, since this provision has been superseded by the flame resistance provisions of HH-I-515D.

The Commission has not reproduced the following paragraphs of HH-I-515D since these paragraphs do not contain provisions superseding the requirements for flame resistance and corrosiveness in GSA specification HH-I-515C: Paragraph 1, *Scope and Classification;* paragraph 2, *Applicable Documents;* paragraph 3, *Requirements;* 3.1 *Material;* 3.1.1 *Qualification;* 3.1.3 *Starch;* 3.1.4 *Thermal Resistance;* 3.1.5 *Moisture Absorption;* 3.1.6 *Odor Emission;* 3.1.8 *Fungi Resistance;* 3.2 *Marking;* 3.2.3 *Workmanship;* paragraph 4, *Quality Assurance Provisions;* 4.1 *Responsibility for Inspection;* 4.2 *Classification of Inspections;* 4.3 *Qualification Tests;* 4.4 *Sampling for Qualification Tests;* 4.5 *Quality Assurance Inspection;* 4.6 *Sampling;* 4.7 *Examination Tests;* 4.8.2 *Thermal Resistance;* 4.8.3 *Odor Emission;* 4.8.6 *Fungi Resistance;* 4.8.9 *Starch;* 4.9 *Quality Assurance Test Methods;* paragraph 5, *Preparation for Delivery;* paragraph 6, *Notes.*

The following provisions of HH-I-515D supersede the requirements for flame resistance and corrosiveness in HH-I-515C:

FEDERAL SPECIFICATION INSULATION THERMAL (LOOSE FILL FOR PNEUMATIC OR POURED APPLICATION): CELLULOSIC OR WOOD FIBER

3. REQUIREMENTS

3.1.2 *Settled density.* The settled density shall be determined in accordance with 4.8.1.

3.1.7 *Corrosiveness.* The loose fill insulation material shall be tested for corrosiveness as specified in 4.8.5. The composition of the insulation material shall be such tme after testing, no perforation of the 3 mil metal specimens shall be evident when the specimens are observed over a chrome reflected 40-W appliance light bulb.

3.1.9 *Critical radiant flux.* When tested in accordance with the Attic floor radiant panel test (see 4.8,7), the critical radaint flux of each of the specimens tested shall be equal to or greater than 0.12 W/cm^2. Specimens submitted for the critical radiant flux test shall be blown as specified in the settled density test procedure (see 4.8.2).

3.1.10 *Smoldering combustion.* When tested in accordance with the smoldering combustion tests (see 4.8.8), the insulation shall meet the following requirements:

No evidence of flaming combustion.

Weight loss 0 15 percent of initial weight, of each of the specimens tested.

4. QUALITY ASSURANCE PROVISIONS

4.8 *Qualification test methods.* The following tests shall be conducted on materials at the measured settled density: Corrosiveness and smoldering combustion. For radiant panel and smoldering combustion, all material shall be blown prior to testing.

4.8.1 *Settled density.* Determination of settled density of loose fill insulation shall be in accordance with the following procedure; and the density thus determined shall be the density on which the coverage chart is determined.

Apparatus

Loose fill insulation sample containers. The sample containers shall be made of construction grade plywood and shall have inside dimensions of 36 inches long by 14 inches wide by 6 inches deep (914.4 x 355.6 x 152.4 mm) and 18 inches long by 14 inches wide by 12 inches deep (457.2 x 355.6 x 304.8 mm), and 11 inches long by 11 inches wide by 12 inches deep (279.4 x 279.4 x 304.8 mm), plus or minus ⅛ inch.

Depth guage. The depth guage shall be as specified in ASTM C 167 Except: The pin shall be 12 inches (304.8 mm) long.

Blowing machine. The blowing machine shall be typical of standard blowing machines and shall be equipped with 100 feet (30.5 M) of 2

inches (50.8mm), standard flexible blower hose.

Humidity chamber. The humidity chamber shall be capable of maintaining 40° F±2° F (4.4° C±1.1° C) and 97 percent±3 percent relative humidity.

Sample preparation for pneumatic applications. The loose fill sample container shall be located at the same level as the blowing machine on a level floor in front of an operator directing the blowing hose. When blowing, the hose shall be pointed 10 degrees upward and the end of the hose shall be kept 11 inches above the floor surface for the 6-inch deep containers and 17 inches above the floor surface for the 12-inch deep containers. the air setting shall be selected by conducting a series of tests with the given machine. A minimum of four air settings should be used. Widely different air settings shall be used first. The lowest setting should be that which will give a uniform flow of material and the highest that which will not produce excessive dust. Two intermediate air settings shall then be used. The air setting which produces the minimum or near minimum as blown density shall be used for the actual test. Place the loose fill insulation into the hopper of the blowing machine. When the insulation is blowing at a steady rate, start filling the container so that the main stream of the material is falling over the rear wall; slowly move backward maintaining the height and direction of the flexible hose as specified. Continue filling the container at an even rate until the material falls over the front wall of the container. Screed fluff the insulation to the top of the container, taking care not to compact the insulation or leave large voids in the surface of the material.

Sample preparation for pouring application. Pour loose fill insulation into a simulated attic space until full. The attic space shall be formed by four 8-feet long, 2 x 6-inch joists placed 16 inches on center with ½-inch plywood nailed to the ends and bottom. Fluff the material with a 20-inch wide garden rake, applying a series of small amplitude strokes while moving the rake slowly along the joist. Repeat the fluffing process six times, and then with a shovel, place the insulation material into the sample containers.

Procedure

First weigh the empty 36 x 14 x 6 inches (914.4 x 355.6 x 152.4 mm) and 18 x 14 x 12 inch (457.2 x 355.6 x 304.8 mm) containers. Blow or pour the material, as specified in the sample preparation, into four 36 x 14 x 6 inches (914.4 x 355.6 x 152.4 mm) containers, four 18 by 14 by 12 inches (457.2 x 355.6 x 304.8 mm) containers as specified weigh the filled containers and determine the density as blown/poured. Blow or pour two containers 11 by 11 by 6 inches (279.4 x 279.4 x 152.4 mm) and two containers 11 by 11 by 12 inches (279.4 x 279.4 x 304.8 mm) using the same techniques. Measure the thickness with accuracy of at least ±1/16 inch (1 mm) of the insulation in the center of the container and four additional measurements at locations in each quarter of the container, and calculate the average thickness. Drop the four 36 by 14 by 6 inches (914.4 x 355.6 x 152.4 mm) and the four 18 by 14 by 12 inches (457.2 x 355.6 x 304.8 mm) containers 6 times from 6 inches (152.4 mm) height, making sure containers are dropped flat onto a concrete floor. Measure the thickness with the same accuracy as above in the same spots as used above; determine the average thickness and calculate the percent decrease in thickness during the drop test (designated as S_d). Note: There will be a S_d for the 6-inch deep containers and a S_d for the 12-inch deep containers. Place the two 11 by 11 by 6 inches (279.4 x 279.4 x 152.4 mm) filled containers and the two 11 by 11 by 12 inches (279.4 x 279.4 x 304.8 mm) filled containers in a climatic chamber at 40° F±2° F (4.4° C) and 97±3 percent relative humidity for 4 days. Remove the containers from the chamber and place in a conditioned room with climate 73° F±2° F and 50±5 percent relative humidity for at least 3 days. Repeat the 4-day cycle and the 3-day cycle until four 3-day cycles have been completed. The final cycling being 3 days at 73° F±2° F (22.8° C) at 50±5 percent relative humidity. Measure the thickness in the same spots as used above; determine the average thickness and calculate the percent decrease (designated S_c). Note: There will be an S_c for the 6-inch deep containers and an S_c for the 12-inch deep containers. Determine the settled density by multiplying the density as blown into 36 × 14 × 6 inches (914.4 x 355.6 x 152.4 mm) and the 18 by 14 by 12 inches (457.2 x 355.6 x 304.8 mm) containers by the factor $s=(100\pm S_d\pm S_c)/100$. The settled densities for the 6 inch (152.4 mm) and the 12-inch (304.8 mm) thick specimens shall be averaged and reported. The drop test and cycling in the climate chambers shall be performed on the pouring application materials in the same manner as for the blown application materials and settled density measurements reported separately.

* * * * *

4.8.5 *Corrosiveness.* Determination of corrosion shall be in accordance with the following test procedure: (see 3.1.7).

Apparatus and Materials

Humidity chamber capable of maintaining 120°±1° F and a relative humidity of 97±1.5 percent.

Evaporating dishes: Six, glass, 90 mm diameter by 50 mm height.

Test specimens: Two each, 2 by 2 inches (50.8 mm) by 0.003 inch (0.0762 mm) thick metal free of tears, punctures, or crimps as follows:

(1) 3003 bare aluminum, zero temper.

(2) ASTM B 152, type ETP, Cabra No. 110 soft copper.

(3) Low carbon, commercial quality, cold rolled, less than 30 carbon content, shim steel.

Insulation sample: Samples of the loose fill thermal insulation submitted for test.

Procedure: Degrease the steel coupons until completely free of water-breaks by scrubbing in 1,1,1-trichloroethane followed by ultrasonic cleaning in a fresh portion of the same solvent for 30 minutes. Rinse in at least two successive portions of distilled water or deionized water (glass containers only) and drain to inspect for water-breaks. Hot air dry. Handle degreased coupons only with clean forcepts. Presaturate the insulation samples by mixing 20 grams (gms) of insulation with distilled water. The quantity of distilled water to be used for each 20 g sample shall be determined using the following formula:

ml distilled water = 2.5 x 150/determined settled density (pcf)

For each 20 g sample of presaturated insulation, place approximately one-half of the insulation sample into an evaporating dish, tamp level, using a clean stainless steel spatula. Place a metal specimen centered on this one-half sample pad in a horizontal plane. Place the remaining half of the presaturated 20 g insulation sample into the evaporting dish on the metal specimen and tamp to assure an even distribution of this material and to assure good contact of the insulation with the metal. Do not cover the evaporating dishes. If dripping occurs in the chamber, position a drip guard in the chamber to divert condensation to the chamber floor. Repeat the above for the six specimens of the 3 mil material. Place all six specimens into the chamber preconditioned to 120° F±3° F (49° C) and 97±1.5 percent relative humidity) for 14 days.

Upon completion of the test, thoroughly wash the metal specimens under running water and lightly brush them to remove loose corrosion products. Remove the remaining corrosion products from the copper, aluminum and steel specimens by immersing the test specimens in a solution of 10 parts distilled water and 1 part nitric acid, 15.9 N. The samples shall be immersed

in the acid rinse no longer than 30 seconds for any one period between rinsing and light brushing; and shall be immersed no more than twice to remove corrosion products and/or sealed insulation materials.

After cleaning, examine the 0.003 inches aluminum, copper, and steel specimens over a chrome reflected 40 W appliance light bulb for perforation (see 3.1.8).

* * * * *

4.8.7 *Critical radiant flux.* Critical radiant flux shall be determined in accordance with the following test procedure: Method of test for critical radiant flux of exposed attic floor insulation using a radiant heat energy source (see 3.1.9).

Apparatus

The basic elements of the test chamber (figure 1[1]) are: (1), An air-gas fueled radiant heat energy panel inclined at 30° and directed at (2) a horizontally-mounted attic floor insulation specimen (figure 2). The radiant panel generates a radiant energy flux distribution ranging along the 100-cm length of the test specimen from a nominal maximum of 1.0 watts/cm² to a minimum of 0.1 watts/cm². The test is initiated by open flame ignition from a pilot burner. The distance burned to flame-out is converted to watts/cm² from the flux profile graph (figure 8) and reported as *critical radiant flux*, watts/cm².

The radiant panel test chamber shall be constructed and instrumentated as follows:

The radiant panel test chamber employed for this test shall be located in a draft-protected laboratory. The radiant panel test chamber, figures 3 and 4, shall consist of an enclosure 140 cm (55 inches) long by 50 cm (19½ inches) deep by 71 cm (28 inches) above the test specimen. The sides, ends, and top shall be of 1.3 cm (½ inch) calcium silicate board, such as Marinite XL, 0.58 g/cm³ (36 lbs/ft³) nominal density, with a thermal conductivity at 200° F of 0.96 cal (g)/hr cm² deg C per cm [0.77 Btu/(hr) (ft²) (deg F per in)]. One side shall be provided with an approximately 10 cm x 110 cm (4 x 44 inches) draft tight fire resistant glass window so that the entire length of the test specimen may be observed from outside the fire test chamber. On the same side and below the observation window is a door which, when open, allows the specimen platform to be moved out for mounting or removal of test specimens. A draft tight fire resistant observation window may be installed at the low flux end of the chamber.

The bottom of the test chamber shall consist of a sliding steel platform which has provisions for rigidly securing the test specimen holder in a fixed and level position. The free, or air access, area around the platform shall be in the range of 1,950–3,550 cm² (300–500 square inches). The top of the chamber shall have an exhaust stack with interior dimensions of 12.5 cm (5 inches) wide by 38 cm (15 inches) deep by 30 cm (12 inches) high at the opposite end of the chamber from the radiant energy source. The radiant heat energy source shall be a panel of porous refractory material mounted in a cast iron frame, with a radiation surface of 30.5 x 45.7 cm (12 by 18 inches). It shall be capable of operating at temperatures up to 816° C (1,500° F). The panel fuel system shall consist of a venturi-type aspirator for mixing gas and air at approximately atmospheric pressure, a clean dry air supply capable of providing 28.3 NTP m³ per hr (1,000 standard cubic feet per hour) at 7.6 cm (3.0 inches) of water, and suitable instrumentation for monitoring and controlling the flow of fuel to the panel.

The radiant heat energy panel shall be mounted in the chamber at 30° to the horizontal specimen plane. The horizontal distance from the 0 mark on the specimen fixture to the bottom edge (projected) of the radiating surface of the panel is 8.9 cm (3½ inches). The panel to specimen vertical distance is 14 cm (5½ inches) (see figure 3). The angle and dimensions given above are critical in order to obtain the required radiant flux. The radiation pyrometer for standardizing the thermal output of the panel shall be suitable for viewing a circular area 25.4 cm (10 inches) in diameter at a range of about 1.37 m (54 inches). It shall be calibrated over the black body temperature range of 490–510° C (914–950° F) in accordance with the procedure described in appendix A. A high impedance potentiometer voltmeter with a suitable millivolt range shall be used to monitor the output of the radiation pyrometer described. The dummy holder (see figure 5), shall be constructed from heat-resistance stainless steel (ANSI Type 300 (UNA-N08330)) or equivalent, thickness 0.198 cm (0.078 inch), having overall dimension of 115 cm (45 inches) by 32 cm (12¾ inches) with a specimen opening of 20 cm (7.9 inches) by 100 cm (40 inches). Six slots are cut in the flange on either side of the holder to reduce warping. The holder is fastened to the platform with two stud bolts at each end.

The specimen tray (see figure 6) shall be constructed from heat-resistant stainless steel (ANSI Type 300 (UNA-N08330)) or equivalent, thickness 0.198 cm (0.078 inch), having overall dimensions of 110 cm (43.3 inches) by 27.3 cm (10.8 inches) the depth of the tray is 5 cm (2 inches). The flanges of the specimen tray are drilled to accommodate two stud bolts at each end; the bottom surface of the flange is 2.1 cm (0.83 inch) below the top edge of the specimen tray.

The pilot burner, used to ignite the specimen shall be a propane venturi torch with an axially symmetic burner tip having a propane supply tube with an orifice diameter of 0.0076 cm (0.003 inch). In operation, the propane flow is adjusted to give a pencil flame blue inner cone length of 1.3 cm (½ inch). The pilot burner is positioned so that the flame generated will impinge on the centerline of the specimen at the zero distance burned point at right angles to the specimen length (see figures 3 and 4). The burner shall be capable of being swung out of the ignition position so that the flame is horizontal and at least 5 cm (2 inches) above the specimen plane.

Two 3.2 cm (⅛ inch) stainless steel sheathed grounded junction Chromel Alumel thermocouples are located in the flooring radiant panel test chamber (see figures 3 and 4). Thermocouples shall be kept clean to insure accuracy of readout. The chamber thermocouple is located in the longitudinal central vertical plane of the chamber 2.5 cm (1 inch) down from the top and 10 cm (4 inches) back from the inside of the exhaust stack. The exhaust stack thermocouple is centrally located 15.2 cm (6 inches) from the top. An indicating potentiometer with a range of 100–500° C (212–932° F) may be used to determine the chamber temperatures prior to a test.

An exhaust duct with a capacity of 28.3–85 NTP m³ per minute (1,000–3,000 scfm) decoupled from the chamber stack by at least 7.6 cm (3 inches) on all sides and with an effective area of the canopy slightly larger than the plane area of the chamber with the specimen platform in the out position shall be used to remove combustion products from the chamber. With the panel turned on and dummy specimen in place, there shall be no measurable difference in air flow through the chamber stack with the exhaust on or off.

The dummy specimen which is used in the flux profile determination shall be made of 1.9 cm (¾ inch) inorganic 0.58 g/cm³ (36 lbs/ft³) nominal density calcium silicate board, such as Marinite XL (see figure 5). It is 25 cm (10 inches) wide by 107 cm (42 inches) long with 2.7 cm (1⅛ inches) diameter holes centered on and along the centerline at the 10, 20, 30, 40, 50, 60, 70, 80, 90 cm locations, measured from the maximum flux end of the specimen. The total heat flux transducer used to determine the flux profile of the

Note: Figures 1 through 10 appear at end of document.

chamber in conjunction with the dummy specimen should be of the Schmidt-Boelter type, have a range of 0-⅛ watts/cm² (0-1/32 Btu/ft² s), and shall be calibrated over the operating flux level range of 0.10 to 1.5 watts/cm² in accordance with the procedure outlined in appendix A. A source of 15-25° C cooling water shall be provided for this instrument. A high impedance or potentiometric voltmeter with a range of 0-10 m.v. and reading to 0.01 m.v. shall be used to measure the output of the total heat flux transducer during the flux profile determination. A timer shall be used for measuring preheat and pilot contact time.

Safety Procedures

The possibility of a gas-air fuel explosion in the test chamber should be recognized. Suitable safeguards consistent with the sound engineering practice should be installed in the panel fuel supply system. These may include one or more of the following: (1) A gas feed cutoff activated when the air supply fails, (2) a fire sensor directed at the panel surface that stops fuel flow when the panel flame goes out, (3) a commercial gas water heater or gas-fired furnace pilot burner control thermostatic shutoff which is activated when the gas supply fails, or other suitable and approved device. Manual reset is a requirement of any safeguard system used. In view of the potential hazard from products of combustion, the exhaust system must be so designed and operated that the laboratory environment is protected from smoke and gas. The operator should be instructed to minimize his exposure to combustion products by following sound safety practice, e.g., insure exhaust systems is working properly, wear appropriate clothing including gloves, et al.

Test Specimens

The test specimen shall be attic floor insulation of sufficient size to fill the specimen tray to a depth of 5 cm (2 inches). Insofar as possible, the attic floor insulation specimen should simulate actual installation practice. Typical example follow: Loose-fill insulation blown in to fill the tray, then carefully screeded to provide a depth of 5 cm in the tray. Loose-fill insulation poured in to fill the tray, then carefully screeded to provide a depth of 5 cm in the tray. A minimum of three specimens per sample shall be tested.

Radiant Heat Energy Flux Profile Standardization

Mount the dummy specimen in the mounting frame and attach the assembly to the sliding platform. With the sliding platform out of the chamber, ignite the radiant panel. Allow the unit to heat for 1 hour. The pilot burner is off during this determination. Adjust the fuel mixture to give an air-rich flame. Make fuel flow settings to bring the panel to an apparent black body temperature as measured by the radiation pyrometer, of about 500° C (932° F), and the chamber temperature to about 180° C (356° F). When equilubrium has been established, move the specimen platform into the chamber. Allow 0.5 hour for the closed chamber to eqilibrate.

Measure the radiant heat energy flux level at the 40 cm point with the total flux meter instrumentation. This is done by inserting the flux meter in the opening so that its detecting plane is 0.16-0.32 cm (1/16-⅛ inch) above and parallel to the plane of the dummy specimen and reading its output after 30±10 seconds. If the level is within the limits specified, the flux profile determination is started. If it is not, make the necessary adjustments in panel fuel flow. A suggested flux profile data log format is shown in figure 7.

The test shall be run under chamber operating conditions which give a flux profile as shown in figure 8. The radiant heat energy incident on the dummy specimen shall be between 0.87 and 0.95 W/cm² (0.77 and 0.83 Btu/ft² sec) at the 20 cm point between 0.48 and 0.52 W/cm² (0.42 and 0.46 Btu/ft² sec) at the 40-cm point and between 0.22 and 0.26 W/cm² (0.19 and 0.23 Btu/ft² sec) at the 60-cm point. Insert the flux meter in the 10-cm opening following the procedure given above. Read the millivolt output at 30±10 seconds and proceed to the 20-cm point. Repeat the 10-cm procedure. The 30-90-cm flux levels are determined in the same manner. Following the 90-cm measurement, make a check reading at 40 cm. If this is within the limits set forth, the test chamber is in calibration and the profile determination is completed. If not, carefully adjust fuel flow, allow 0.5 hour for equilibrium and repeat the procedure. Plot the radiant heat energy flux data as a function of distance along the specimen plane on rectangular coordinate graph paper. Carefully draw the best smooth curve through the data points. This curve will hereafter be referred to as the flux profile curve.

Determine the open chamber apparent black body and chamber temperatures that are identified with the standard flux profile by opening the door and moving the specimen platform out. Allow 0.5 hour for the chamber to equilibrate. Read the radiation pyrometer output and record the apparent black body temperature in °C. This is the temperature setting that can be used in subsequent test work in lieu of measuring the radiant flux at 20 cm, 40 cm, and 60 cm using the dummy specimen. The chamber temperature also shall be determined again after 0.5 hour and is an added check on operating conditions.

Conditioning

Test specimens shall be conditioned to equilibrium or a minimum of 48 hours, whichever is greater, at 21±3° C (69.8±5.4° F) and a relative humidity of 50±5 percent immediately prior to testing.

Test Procedure

With the sliding platform out of the chamber, ignite the radiant panel. Allow the unit to heat for 1 hour. It is recommended that a sheet of inorganic millboard be used to cover the opening when the hinged portion of the front panel is open and the specimen platform is moved out of the chamber. The millboard is used to prevent heating of the specimen and to protect the operator. Read the panel apparent black body temperature and the chamber temperature. If these temperatures are in agreement to within ±5° C with those determined previously, as above, the chamber is ready for use.

Mount the specimen tray with insulation on the sliding platform and position with stud bolts (see figure 9). Ignite the pilot burner, move the specimen into the chamber, and close the door. Start the timer. After 2 minutes preheat, with the pilot burner on and set so that the flame is horizontal and 5 cm above the specimen, bring the pilot burner flame into contact with the center of the specimen at the 0 cm mark. Leave the pilot burner flame in contact with the specimen for 5 minutes, then remove to a position 5 cm above the specimen and leave burning until the test is terminated.

If the specimen does not ignite within 5 minutes following pilot burner flame application, the test is terminated by extinguishing the pilot burner flame. For specimens that do ignite, the test is continued until the flame goes out. When the test is completed, the door is opened, the specimen platform is pulled out.

Measure the distance burned, i.e., the point of farthest advance of the flame front, to the nearest 0.1 cm. From the flux profile curve, convert the distance to watts/cm² critical radiant heat flux at flame out. Read to two significant figures. A suggested date log format is shown in figure 10.

Remove the specimen tray from the movable platform. The succeeding test can begin as soon as the panel apparent black body temperature and chamber temperature are verified. The specimen tray should be at room temperature prior to insertion of the next specimen.

4.8.8. *Smoldering combustion.* Smoldering combustion shall be determined in accordance with the following test procedure: Method of test for smoldering combustion characteristics of materials used for thermal insulation (see 3.1.10).

Apparatus

The specimen holder shall be an open-top 20±0.2-cm square box, 10±0.2 cm in height, fabricated from a single piece of 0.61±0.08 mm thick (24 U.S. standard gauge) stainless steel sheet with the vertical edges of the box overlapped, not to exceed to 7 mm in seam width, and soldered so as to be watertight. The specimen holder during test use shall rest upon a pad of glass fiberboard having dimensions equal to or greater than those of the bottom of the specimen holder. The glass fiberboard shall be approximately 2.5 cm thick with a density of 40±8 kg/m^3 (note 1).

NOTE 1.—Glass fiberboard which meets Federal specification HH-I-558B (form A, class 1, plain faced) is suitable for this purpose.

Ignition source. The ignition source shall be a cigarette without filter tip made from natural tobacco, 85±2 mm long with a tobacco packing density of 0.270±0.020 g/cm^3 and a total weight of 1.1±0.1 gm.

Balance. A balance of 1 kg capacity, accurate at least to 0.1 g, and provided with a suitable scale pan is required.

Test area. The test area shall be draft protected and equipped with a suitable system for exhausting smoke and/or noxious gases produced by testing. Air velocities as measured by a hot wire anemometer in the vicinity of the surface of the sample shall not exceed 0.5 m/sec. The test area shall be maintained at 21±3° C (69.8±5.4° F) and 50±5 percent relative humidity.

Test Procedure

Samples and cigarettes shall be conditioned in air at a temperature of 21±3° C (69.8±5.4° F) and a relative humidity of 50±5 percent for at least 48 hours prior to test. Samples and cigarettes shall be removed from any packaging and exposed in a suitable manner to permit free movement of air around them during conditioning. Calculate the weight of material necessary to fill the holder (volume 44, 0.14 ft^3) at the settled density as determined in 4.8.1. The material shall be loaded uniformly into each specimen holder, level and flush to the top edge of the holder. The weight of each specimen shall be measured to the nearest 0.2 g or less by weighing the holder before and after filling. If the weight of the specimen is less than that calculated, the loaded holder shall be dropped from a height no greater than 3 inches (7.6 cm) onto a hard flat surface and additional material added up to the top edge of the holder. This process shall be repeated until the calculated weight of material has been added and completely fills the holder. With the sample in the holder and placed on the insulated pad, a rod of 8 mm diameter with a pointed end shall be inserted vertically into the approximate center of the material being tested and withdrawn to form an appropriate cavity for the ignition source, such that the cigarette fits snugly and maintains uniform contact with the specimen. A well-lit cigarette, burned not more than 8 mm (0.3 inch), shall be inserted using tweezers in the formed cavity, with the lit end upward and flush with the sample surface. Burning of the cigarette and specimen shall be allowed to proceed undisturbed in the test area for at least 2 hours or until the smoldering is no longer progressing.

After completion of burning and after the holder has cooled down to 25° C, the specimen holder with its material residue shall be weighed, at least to the nearest 0.2 g, and the percent weight loss of the original specimen calculated. The weight of the cigarette residue is ignored in this calculation.

* * * * *

APPENDIX A—PROCEDURE FOR CALIBRATION OF RADIATION INSTRUMENTATION

RADIATION PYROMETER

Calibrate the radiation pyrometer by means of a conventional black body enclosure placed within a furnace and maintained at uniform temperatures of 490, 500, and 510° C (914, 932, 950° F). The black body enclosure may consist of a closed Chromel metal cylinder with a small sight hole in one end. Sight the radiation pyrometer upon the opposite end of the cylinder where a thermocouple indicates the black body temperature. Place the thermocouple within a drilled hole and in good thermal contact with the black body. When the black body enclosure has reached the appropriate temperature equilibrium, read the output of the radiation pyrometer. Repeat for each temperature.

Total heat flux meter. The total flux meter shall be calibrated by the National Bureau of Standards (direct request for such calibration services to the Optical Radiation Section, 232.04, National Bureau of Standards, Washington, D.C. 20234), or alternatively, its calibration shall be developed by transfer calibration methods with an NBS calibrated flux meter. This latter calibration shall make use of the radiant panel tester as the heat source. Measurements shall be made at each of the nine dummy specimen positions and the mean value of these results shall constitute the final calibration.

It is recommended that each laboratory maintain a dedicated calibrated reference flux meter against which one or more working flux meters can be compared as needed. The working flux meters should be calibrated according to the procedure of A2.1 at A2.1 at least once per year.

PROCEDURE FOR SUBMITTING COMMENTS

Interested persons are invited to submit written data or views regarding this notice of intent to propose an amendment and a certification rule on or before October 6, 1978. Comments should be accompanied, to the extent possible, by supporting data or documentation. Requests for confidentiality of documentation will be handled in accordance with the Freedom of Information Act as amended (5 U.S.C. 552) the Commission's regulations under that act (16 CFR Part 1015, February 22, 1977) and the provisions of section 6(a)(2) of the CPSA (15 U.S.C. 2055(a)(2)).

Written submissions and any accompanying data or material should be submitted, preferably in five copies, addressed to the Secretary, Consumer Product Safety Commission, Washington, D.C. 20207.

All written comments that are received, and all other material which the Commission has that is relevant to this proceeding may be seen in or copies obtained from the Office of the Secretary, Third Floor, 1111 18th Street NW., Washington, D.C. 20207.

(Sec. 35(a), Pub. L. 95-319, 92 Stat. 386; (15 U.S.C. 2082).)

Dated: August 31, 1978.

SADYE E. DUNN,
Acting Secretary, Consumer Product Safety Commission.

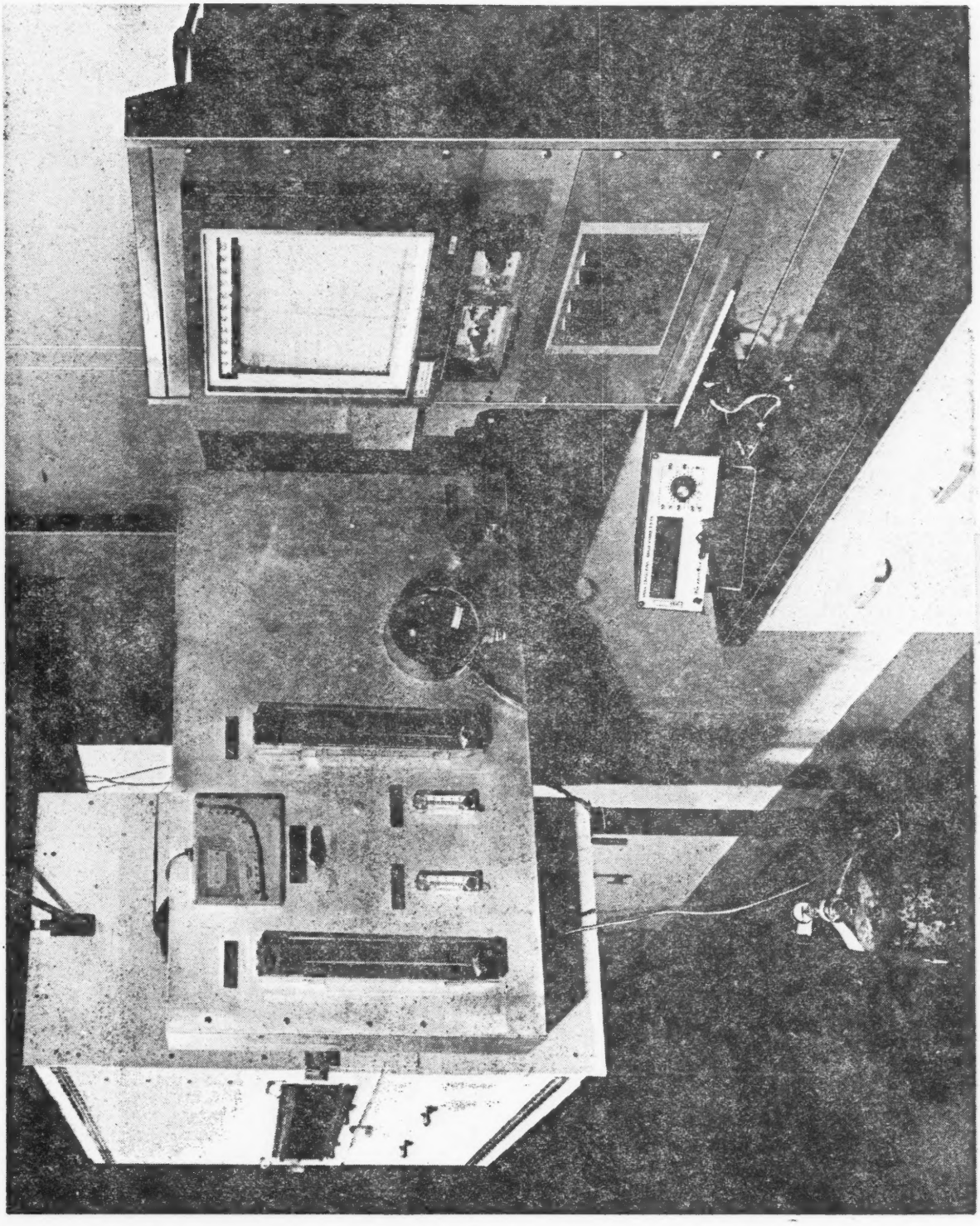


Figure 1

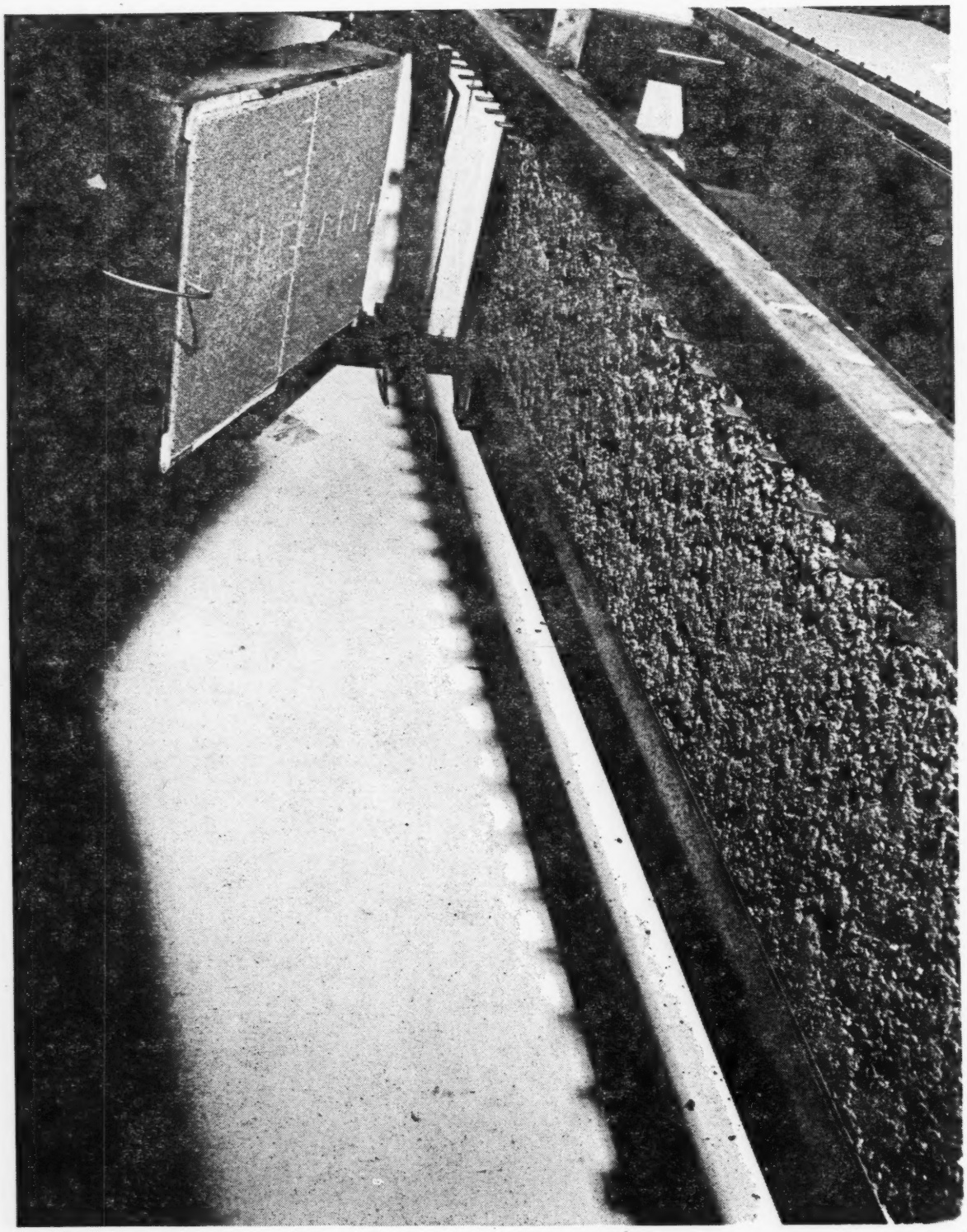
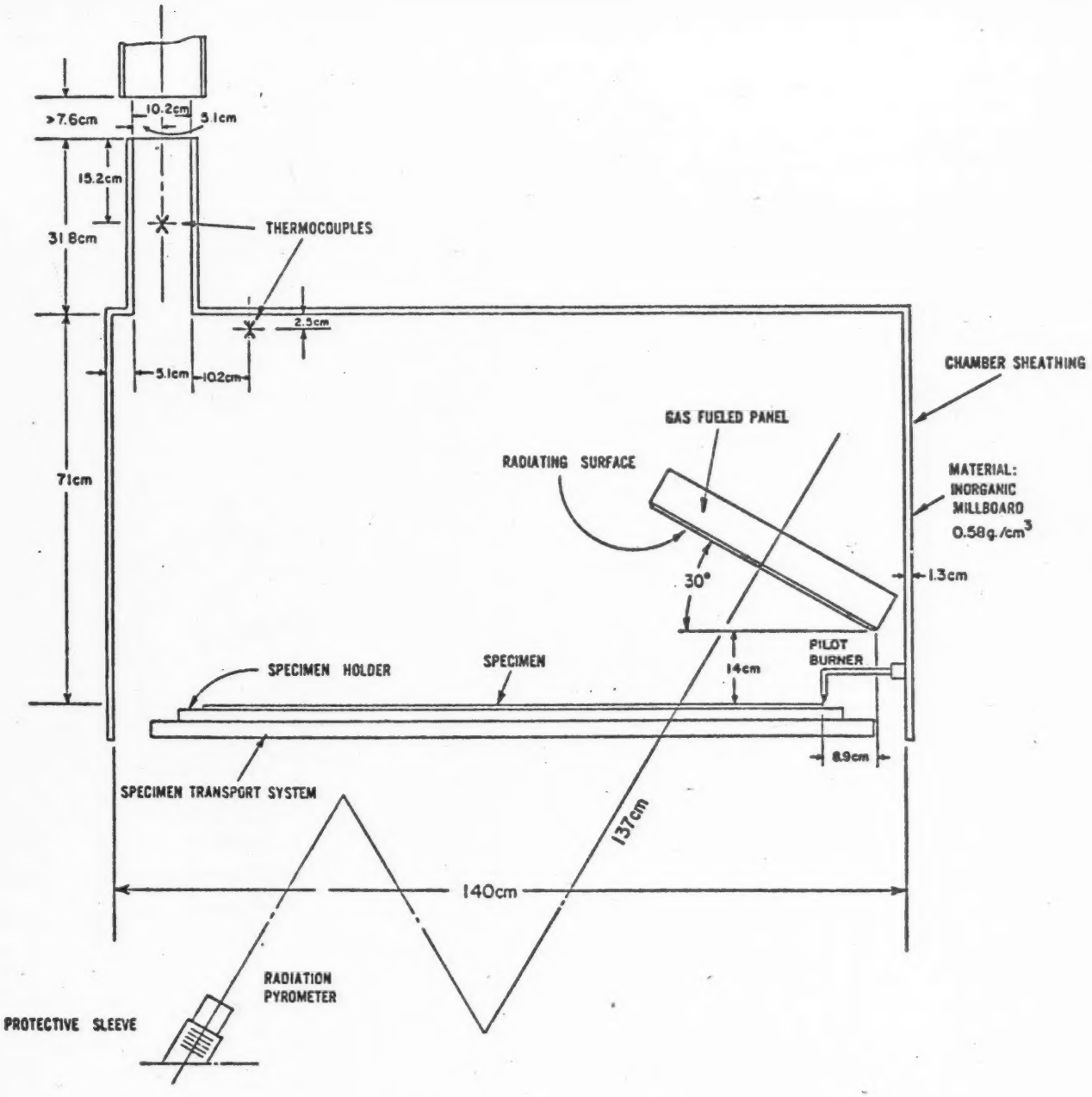
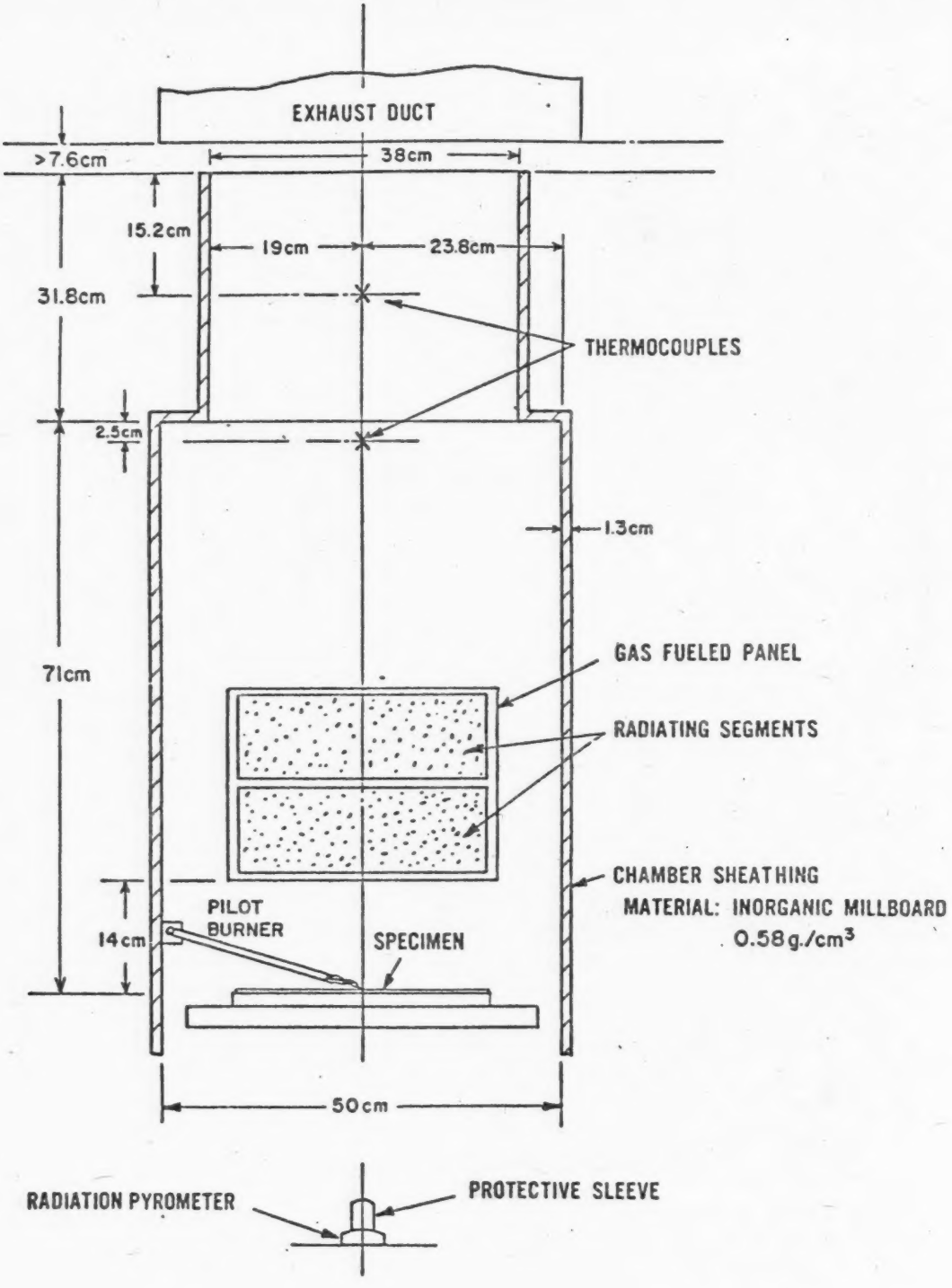


Figure 2



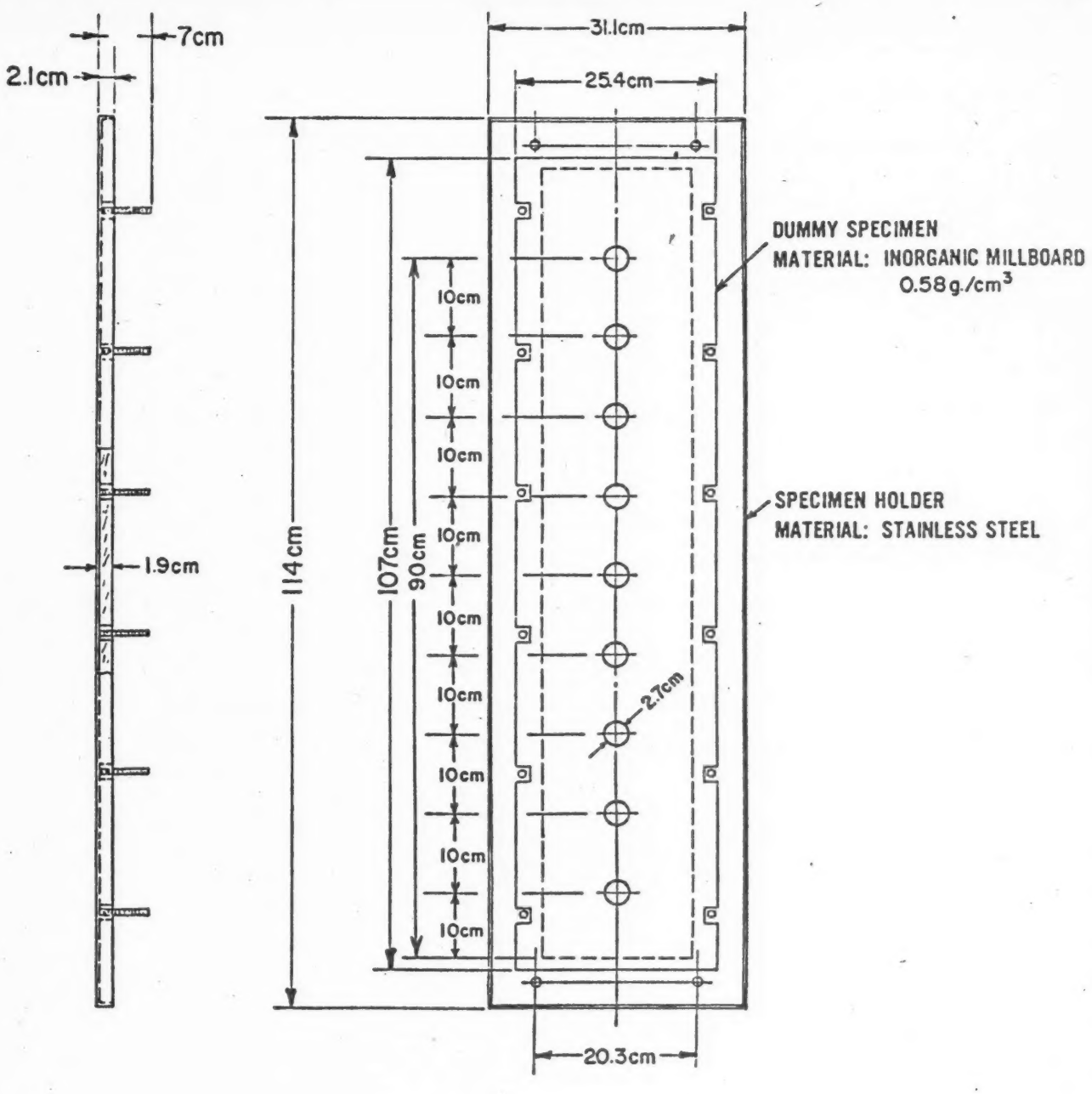
FLOORING RADIANT PANEL TESTER SCHEMATIC
SIDE ELEVATION

Figure 3



FLOORING RADIANT PANEL TESTER SCHEMATIC
LOW FLUX END, ELEVATION

Figure 4



DUMMY SPECIMEN IN SPECIMEN HOLDER

Figure 5

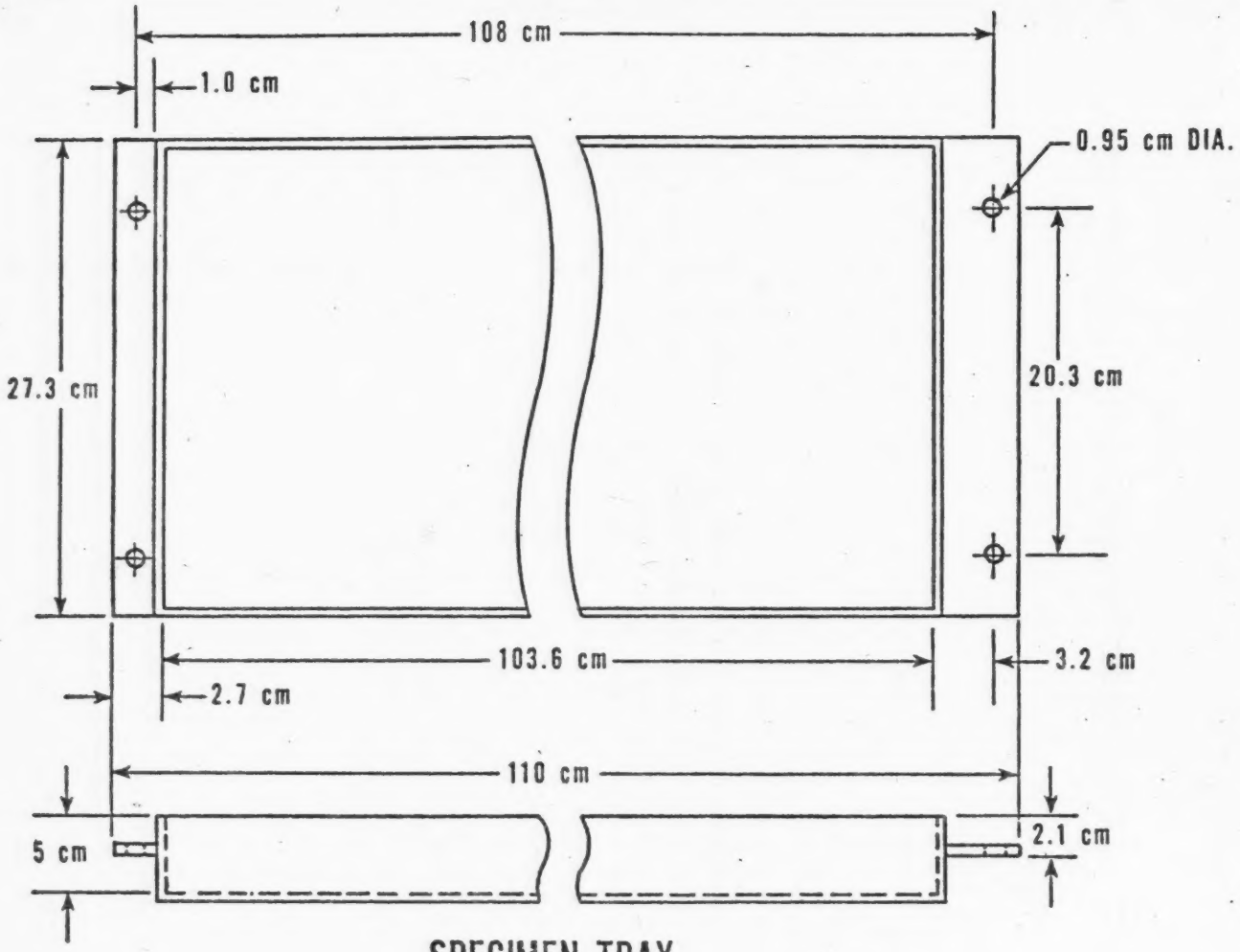

108 cm
1.0 cm
0.95 cm DIA.
27.3 cm
20.3 cm
103.6 cm
2.7 cm
3.2 cm
110 cm
5 cm
2.1 cm
SPECIMEN TRAY

Figure 6

RADIANT FLUX PROFILE

Date_____

Black Body Temperature_____m.v. _____°C (°F)

Gas Flow_____$NTPm^3H$ (SCFH) Air Flow_____$NTPm^3H$ (SCFH)

Room Temperature_____°C (°F)

Air Pressure _____ Gas_____cm (in) of H_2O

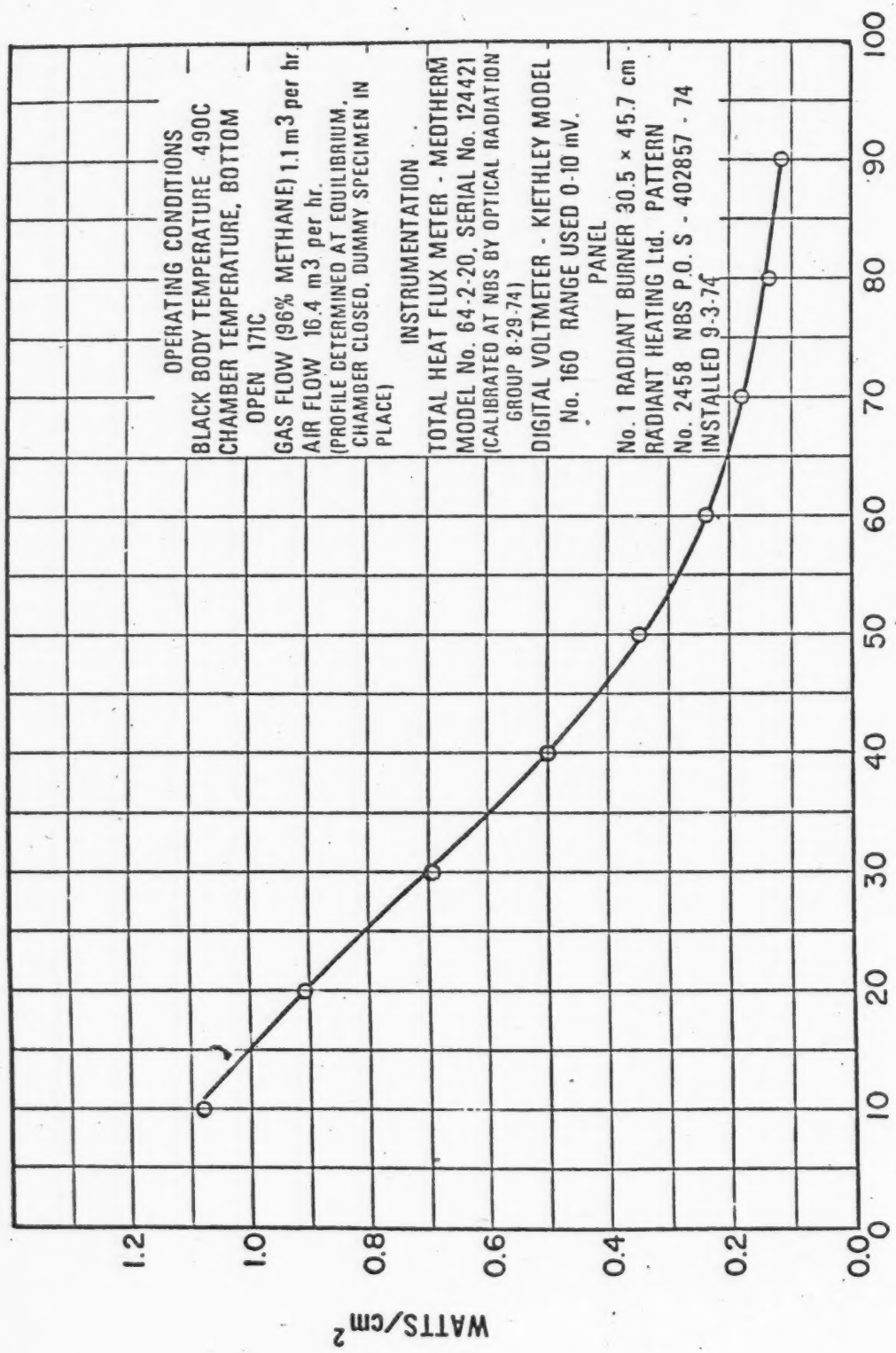
Flux Meter Conversion Factor_____

Radiometer No._____ from Calibration on_____

Distance (cm)	MV	Watts/cm^2
10	_____	_____
20	_____	_____
30	_____	_____
40	_____	_____
50	_____	_____
60	_____	_____
70	_____	_____
80	_____	_____
90	_____	_____

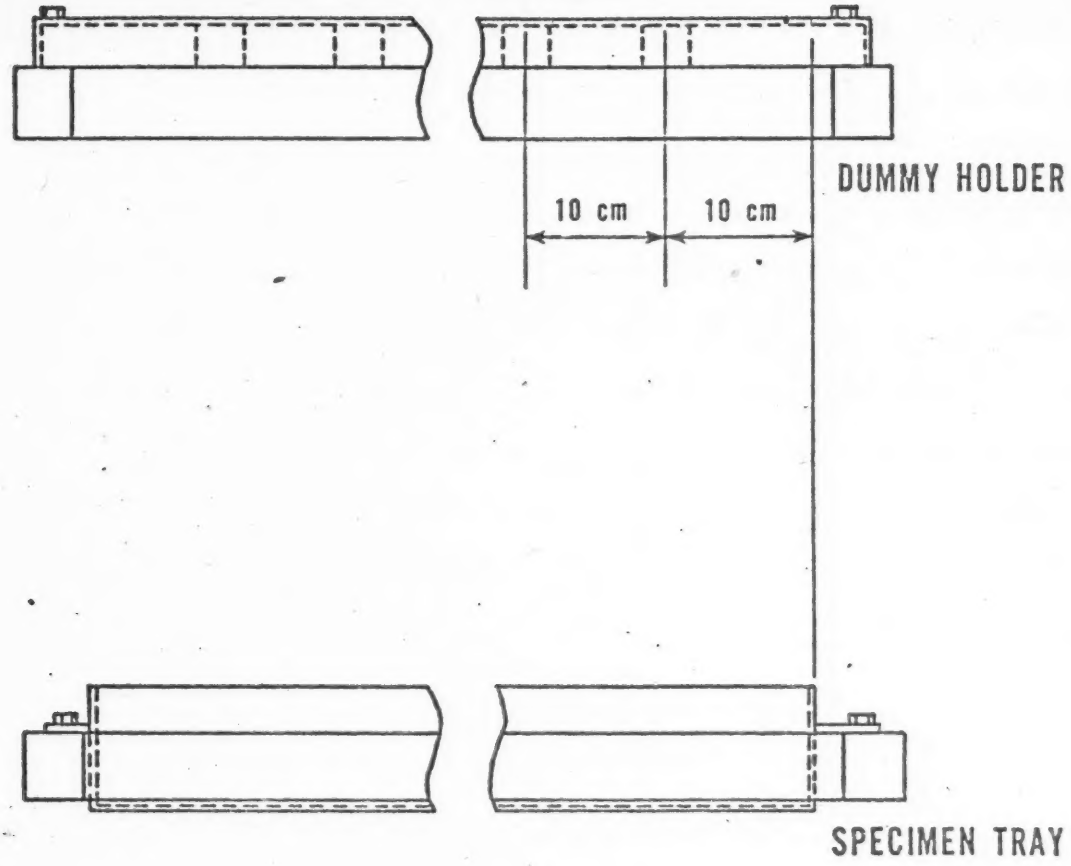
Signed _____

Figure 7. Flux Profile Data Log Format



STANDARD RADIANT HEAT ENERGY FLUX PROFILE

Figure 8



SPECIMEN TRAY MOUNTING POSITION

Figure 9

Test Number _____ Date _____ Time _____

Laboratory _____

Specimen Identification/Code No. _____

Test Assembly: _____

Panel: Angle _____° Temperature _____°C (°F)

Flow: Gas _____$NTPm^3H$ (SCFH) Air _____$NTPm^3H$

Pressure, cm (in) H_2O: Initial, Air _____ Gas _____

Chamber Temperature (Initial) _____°C (°F)

Room: Temperature _____°C (°F) Hood Draft _____cm (in) water

Flame Front Out _____ min.

All Flame Out _____ min.

Total Burn Length _____cm (in)

Critical Radiant Flux watts/cm^2 _____

Flux Profile Reference _____

Observations:

Signed _____

Figure 10. Insulation Radiant Panel Test Data Log Format

[FR Doc. 78-25015 Filed 9-5-78; 8:45 am]

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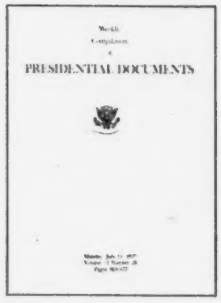

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